IS 15976 : 2013

(Reaffirmed 2018)

भारतीय मानक

अनावृत चालक के लिए इस्पात रील और ड्रम — विशिष्टि

Indian Standard

STEEL REELS AND DRUMS FOR BARE CONDUCTORS — SPECIFICATION

ICS 29.060.01;77.140.01

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

July 2013 **Price Group 2**

Conductors and Accessories for Overhead Lines Sectional Committee, ETD 37

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Conductors and Accessories for Overhead Lines Sectional Committee had been approved by the Electrotechnical Division Council.

Indian Standard IS 1778 : 1980 'Specification for reels and drums for bare conductors for wooden drums' already exists. The Committee decided to formulate this standard as steel drums are reusable and light in weight with cheap transportation cost. Further steel drum manufacturers could take back the drums from the users on cost reduction basis.

In this standard, dimensions for various components, test requirements and constitutional details have been specified.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

STEEL REELS AND DRUMS FOR BARE CONDUCTORS — SPECIFICATION

1 SCOPE

This standard specifies the requirements for steel drums for overhead line conductors.

2 NOMENCLATURE

For the purpose of this standard, the names of the various component parts of drums as shown in Fig. 1 shall apply.

3 MATERIAL AND CONSTRUCTION

3.1 The drum shall be so constructed and made from such materials that they satisfy the conditions specified in this standard. The flanges and barrel shall be free from protruding material capable of damaging the conductor or the hands of the operator during rotation of the drum. The general constructional features of the drums shall be as shown in Fig.1.

3.2 Where a slot is cut in the flange to receive the inner end of the conductor, the entrance shall be in line with the periphery of the barrel.

3.3 The flanges of the drum shall be large enough to prevent any possible contact between the conductors and the ground during handling or transport. The projection of the flanges beyond the outer most layer of the conductors shall be at least 50 mm for all drums.

4 DIMENSIONS

4.1 The drum sizes shall always be denoted by the flange diameter. The dimensions shall be in accordance with Table 1.

NOTE — To accommodate different lengths of the conductor, flange diameter, barrel diameter and traverse of the drum may be changed as per the mutual agreement between the supplier and the purchaser provided all other requirements of the standard are fulfilled.

5 PROTECTIVE ARRANGEMENT

5.1 Protective Wrapping

A layer of waterproof material shall be provided over the barrel and inside portion of the flanges. Another layer of waterproof material shall be provided over the last layer of conductor and under the laggings/ laminated wood fibre.

5.2 External Laggings

5.2.1 The external lagging of wood shall be closely fitted and shall be of the thickness given in Table 1.

5.2.2 Binders consisting of hoop iron or galvanized steel wire shall be provided over the external laggings.

5.3 Laminated Wood Fibre

5.3.1 The laminated wood fibre shall be directly laid down on the external layer of the conductor in such a manner that it does not come in contact with the ground to protect the conductor surface.

5.3.2 The laminated wood fibre shall preferably be made from such material that should not have any effect on the conductor surface. The laminated wood fibre shall be in accordance with Table 1.

NOTE — To protect the external surface of the conductor from any damages the thickness of the laminated wood fibre may be changed in the range of 4 to 10 mm as per the mutual agreement between the supplier and the purchaser provided all other requirements of the standard are fulfilled.

5.3.3 Binders consisting of iron hook or galvanized steel strap shall be provided over the laminated wood fibre.

6 LABELLINGAND MARKING

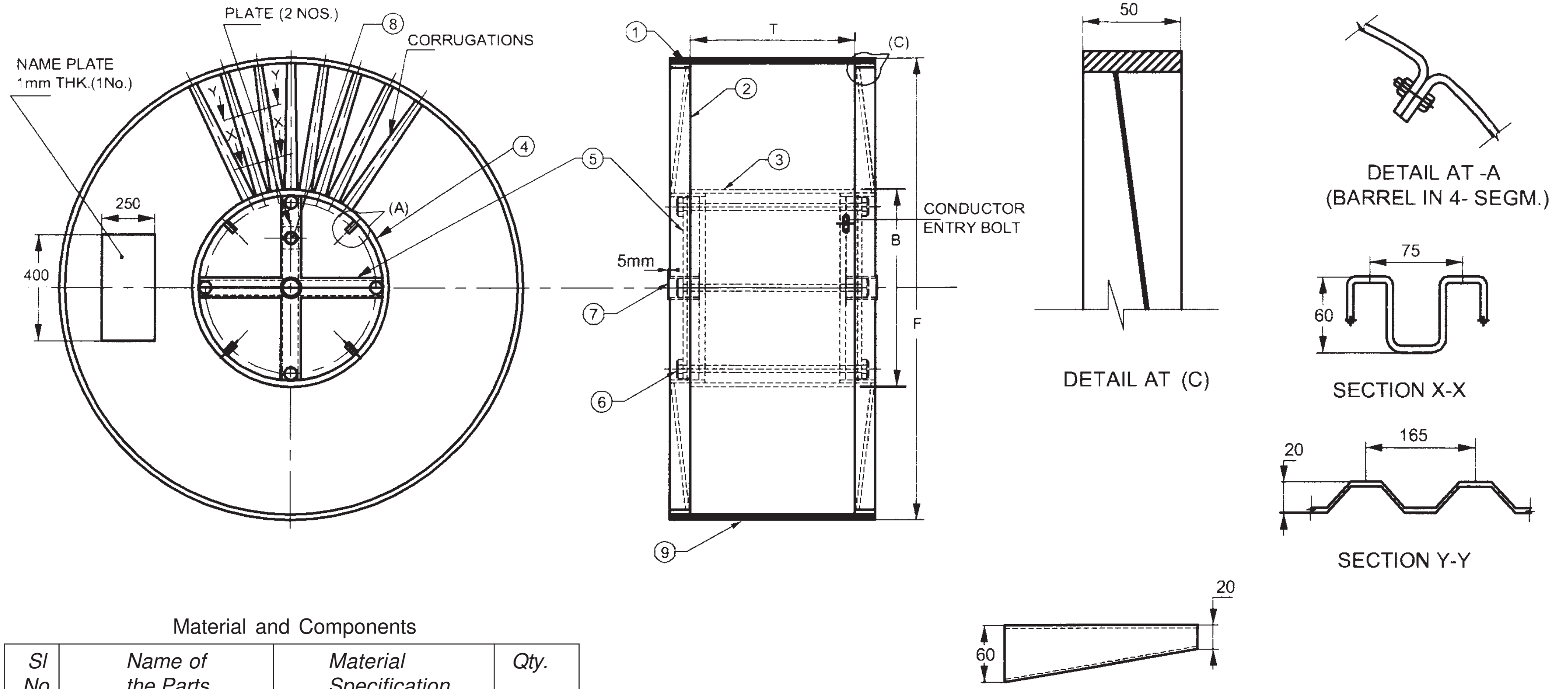
6.1 Labelling

The drum number shall be stenciled into the flange .An arrow shall be marked on the sides of the drum, together with the words 'Roll this way'.The following particulars of the contents of the drum shall be provided by stenciled / final label on the outside of the flange in such a manner that it cannot be easily removed:

a) Manufacturer's name or trade-mark;
b) Contract/Specification number;
c) Size and type of conductor;
d) Net mass of the conductor;
e) Gross mass of the drum and conductor;
f) No. of length/lengths of the conductor;
g) Position of the conductor end;
h) Name and address of the consignee; and
j) Drum and lot number.

6.2 BIS Certification Marking

The product may also be marked with the Standard Mark.



Material and Components

Sl No.	Name of the Parts	Material Specification	Qty.
1	OUTER RING	M.S. PLATE	2
2	FLANGE	H.R. SHEET	2
3	BARREL	H.R. SHEET	4 SEG
4	INNER RING	M.S. PLATE	2
5	CROSS ARM	ISMC.	4
6	TIE ROD	M.S. ROD	4
7	CENTRE BUSH	M.S. PIPE	2
8	DRIVE BUSH	M.S. PIPE	2
9	EXTERNAL LAGGING	WOODEN BATTEN	—

TYPE TESTING – ROLL DOWN FROM 1.0 m HEIGHT
ON AN INCLINED PLANE OF 45°
THREE TIMES.

1) All M.S. item confirm to IS 2082 or its equivalent
2) Tolerance over all +5 mm
3) Tolerance on sheet metal +0.1 mm
4) Tolerance on other M.S. items +3 mm
5) Tolerances on thickness +0.5 mm for other M.S. items
6) Tolerance on bush +2 mm
7) Surface treatment of all M.S. items two coats of red oxide
8) Holes on outer ring at a distance of 400 mm.
Centre distance along the circumference will be provided to facilitate battening.
9) Number of sheets used for corrugation in each flange-3 NOS.

All dimensions in millimetres.

FIG. 1 DRUM NOMENCLATURE

Table 1 Construction Details of Steel Drums

(*Clauses* 4.1, 5.3.2 *and* 7.2)

All dimensions in millimetres.

Sl No.	Drum Components	Constructional Details for Drum Components								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
i)	Flange diameter	965	1065	1195	1220	1345	1370	1475	1615	1725
ii)	Barrel diameter	585	600	600	600	600	600	600	685	710
iii)	Traverse	510	710	710	710	710	710	710	812	812
iv)	Outer ring	50 × 6	50 × 6	50 × 6	50 × 6	50 × 6	50 × 6	50 × 6	50 × 8	50 × 8
v)	Flange thickness[1]	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
vi)	Barrel thickness[2]	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
vii)	Inner ring	100 × 6	100 × 6	100 × 6	100 × 6	100 × 6	100 × 6	100 × 6	100 × 6	100 × 6
viii)	Cross arms	75 × 40 × 6	75 × 40 × 6	75 × 40 × 6	75 × 40 × 6	75 × 40 × 6	75 × 40 × 6	75 × 40 × 6	75 × 40 × 6	75 × 40 × 6
ix)	Tie rod	4 × 12	4 × 12	4 × 12	4 × 12	4 × 12	4 × 12	4 × 12	4 × 16	4 × 16
x)	Centre bush	80	80	80	80	80	80	80	100	100
xi)	Drive hole (Dia) (10 mm thick plate)	50	50	50	50	50	50	50	50	50
xii)	Thickness of external lagging	25	25	25	25	25	25	25	25	25
xiii)	No. of binders over external lagging	2	2	2	2	2	2	2	2	2
xiv)	Name plate	150 × 300	150 × 300	150 × 300	150 × 300	250 × 400	250 × 400	250 × 400	250 × 400	250 × 400

[1] Corrugated 1.6 mm thick H.R. sheet.

[2] 1.8 mm thick H.R. sheet.

6.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

7 TESTS

7.1 Type Test

The following shall constitute type tests:

a) Visual examination (*see* **7.3**); and

b) Drum strength (*see* **7.4**).

7.2 Routine Tests

The following shall constitute routine tests:

a) Visual examination (*see* **7.3**); and

b) Dimensional test as per Table 1.

7.3 Visual Examination

Each drum shall be examined visually for good workmanship. The welding shall be smooth and shall not be injurious.

7.4 Drum Strength

Roll down the drum three times from 1m height on an inclined plane of 45°. No damage/bend to flange.

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This Indian Standard has been developed from Doc No. : ETD 37 (5817).

Amendments Issued Since Publication

Amendment No.	Date of Issue	Text Affected

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Published by BIS, New Delhi